**Unit 2 Map (Biochemistry)**

Osbourn Park, Biology 1, 2014-2015

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| **Topic** | **Specific Learning Target** | **DBA Score** (%) | **Test Score** (%) |
| 1. Atomic and Molecular Structure | A. I can describe the structure of an atom and describe the location and charge of the three subatomic particles (i.e. protons, neutrons, and electrons). |  |  |
| B. I can describe the difference between an ionic and covalent bond. |  |  |
| C. I can identify the six main elements in living organisms. (i.e. carbon, hydrogen, nitrogen, oxygen, phosphorus, and sulfur) |  |  |
| 2. Properties of Water | D. I can describe how the properties of oxygen and hydrogen make water a polar molecule. |  |  |
| E. I can explain how water’s polarity allows it to form hydrogen bonds. |  |  |
| F. I can explain how water’s polarity and hydrogen bonding give it the following unique properties: cohesion, surface tension, adhesion, capillary action, ability to serve as a solvent, low density as a solid, and a high specific heat/heat capacity. |  |  |
| G. I can identify the pH of water as neutral (7), explain the difference between an acidic and basic pH, and identify common examples of acids and bases. |  |  |
| 3. Macromolecules | H. I can identify an organic molecule as a molecule containing carbon. |  |  |
| I. I can describe how monomers of all four macromolecules are joined into polymers in the process of dehydration synthesis / polymerization. You will be able to describe how polymers are broken into monomers in the process of hydrolysis. |  |  |
| J. I can provide examples of the monomers and polymers for all four macromolecules. |  |  |
| K. I can describe the basic structure of the monomers and polymers for all four macromolecules. |  |  |
| L. I can identify the functions of all four macromolecules in living organisms and explain how the structure of each macromolecule contributes to its function. |  |  |
| 4. Enzymes | M. I can identify the components of a chemical reaction—reactants/substrates and products—and define chemical reactions as the breaking of chemical bonds in reactants and forming of new chemical bonds to create products. |  |  |
| N. I can describe the role of catalysts/enzymes in lowering the activation energy for a reaction and therefore increasing the speed of that reaction. |  |  |
| O. I can describe the mechanism of enzyme function by discussing how substrates fit into enzymes’ active sites (either by the lock and key model or induced fit model). |  |  |